

10/553600

=> file registry

FILE 'REGISTRY' ENTERED AT 11:24:54 ON 20 DEC 2007

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STRUCTURE FILE UPDATES: 19 DEC 2007 HIGHEST RN 958936-22-6

DICTIONARY FILE UPDATES: 19 DEC 2007 HIGHEST RN 958936-22-6

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

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<http://www.cas.org/support/stngen/stndoc/properties.html>

=> file zcaplus

FILE 'ZCAPLUS' ENTERED AT 11:25:05 ON 20 DEC 2007

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

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FILE COVERS 1907 - 20 Dec 2007 VOL 147 ISS 26

FILE LAST UPDATED: 19 Dec 2007 (20071219/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'ZCAPLUS' FILE

=> d stat que L13

|    |      |     |               |        |        |             |            |
|----|------|-----|---------------|--------|--------|-------------|------------|
| L1 | 9474 | SEA | FILE=REGISTRY | ABB=ON | PLU=ON | OC4/ESS (S) | C3/ESS     |
| L3 | 689  | SEA | FILE=REGISTRY | ABB=ON | PLU=ON | OC3/ESS (S) | (2 C5/ESS) |
| L4 | 66   | SEA | FILE=REGISTRY | ABB=ON | PLU=ON | L3 AND F>5  |            |
| L5 | 11   | SEA | FILE=ZCAPLUS  | ABB=ON | PLU=ON | L4          |            |
| L6 | 855  | SEA | FILE=REGISTRY | ABB=ON | PLU=ON | L1 (S)      | (2 C5/ESS) |
| L7 | 10   | SEA | FILE=REGISTRY | ABB=ON | PLU=ON | L6 AND F>5  |            |

10/553600

L12 9 SEA FILE=ZCAPLUS ABB=ON PLU=ON L7  
L13 19 SEA FILE=ZCAPLUS ABB=ON PLU=ON L5 OR L12

=> d ibib abs hitstr L13 1-19

L13 ANSWER 1 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2007:968110 ZCAPLUS Full-text  
DOCUMENT NUMBER: 147:374517  
TITLE: Chemically amplified positive photoresist composition  
INVENTOR(S): Ando, Nobuo; Fuji, Yusuke; Takemoto, Kazuki  
PATENT ASSIGNEE(S): Sumimoto Chemical Co., Ltd., Japan  
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 101pp.  
CODEN: CNXXEV  
DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO.  | DATE       |
|------------------------|------|----------|------------------|------------|
| -----                  | ---- | -----    | -----            | -----      |
| CN 101021683           | A    | 20070822 | CN 2007-10079265 | 20070213   |
| KR 2007082525          | A    | 20070821 | KR 2007-14551    | 20070212   |
| US 2007218401          | A1   | 20070920 | US 2007-705138   | 20070212   |
| JP 2007249192          | A    | 20070927 | JP 2007-34384    | 20070215   |
| PRIORITY APPLN. INFO.: |      |          | JP 2006-37624    | A 20060215 |

AB The title composition comprises F-free resin A which has unit (a1) labile to acid, and hydroxyl-containing unit (a3) and/or lactone-containing unit (a4); resin B which has F-containing unit (b2), and at least one of unit (b2) labile to acid, hydroxyl-containing unit (b3), and lactone-containing unit (b4); and acid generator. The composition can be used in immersion lithog. process of semiconductor.

IT 949158-51-4P 949158-53-6P 949158-57-0P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (chemical amplified pos. photoresist composition)

RN 949158-51-4 ZCAPLUS

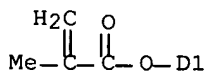
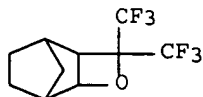
CN 2-Propenoic acid, 2-methyl-, 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl ester, polymer with 2-ethyltricyclo[3.3.1.1<sup>3,7</sup>]dec-2-yl 2-methyl-2-propenoate (CA INDEX NAME)

CM 1

CRN 792930-62-2

CMF C14 H14 F6 O3

CCI IDS

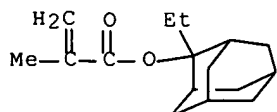


10/553600

CM 2

CRN 209982-56-9

CMF C16 H24 O2



RN 949158-53-6 ZCAPLUS

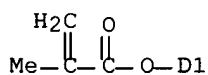
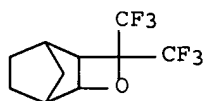
CN 2-Propenoic acid, 2-methyl-, 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl ester, polymer with 2-ethyltricyclo[3.3.1.1<sup>3,7</sup>]dec-2-yl 2-methyl-2-propenoate and 3-hydroxytricyclo[3.3.1.1<sup>3,7</sup>]dec-1-yl 2-methyl-2-propenoate (CA INDEX NAME)

CM 1

CRN 792930-62-2

CMF C14 H14 F6 O3

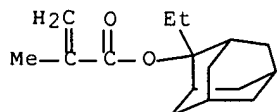
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CM 2

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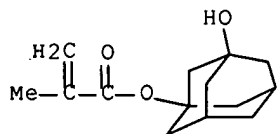


CM 3

CRN 115372-36-6

10/553600

CMF C14 H20 O3



RN 949158-57-0 ZCAPLUS

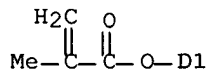
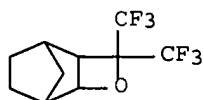
CN 2-Propenoic acid, 2-methyl-, 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1<sup>3,7</sup>]dec-1-yl 2-methyl-2-propenoate (CA INDEX NAME)

CM 1

CRN 792930-62-2

CMF C14 H14 F6 O3

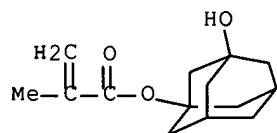
CCI IDS



CM 2

CRN 115372-36-6

CMF C14 H20 O3



L13 ANSWER 2 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:534638 ZCAPLUS Full-text

DOCUMENT NUMBER: 146:531178

TITLE: Photoactive compounds

INVENTOR(S): Rahman, M. Dalil; Padmanaban, Munirathna

PATENT ASSIGNEE(S): USA

10/553600

SOURCE: U.S. Pat. Appl. Publ., 21pp., Cont.-in-part of U.S. Ser. No. 280,842, abandoned.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| US 2007111138 | A1   | 20070517 | US 2006-355400  | 20060216 |
| WO 2007057773 | A2   | 20070524 | WO 2006-IB3315  | 20061115 |
| WO 2007057773 | A3   | 20071115 |                 |          |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

PRIORITY APPLN. INFO.: US 2005-280842 B2 20051116  
 US 2006-355400 A 20060216

AB The present invention relates to novel photoacid generators useful in photoresist compns. in the field of microlithog., and especially useful for imaging neg. and pos. patterns in the production of semiconductor devices as well as photoresist compns. and processes for imaging photoresists.

IT 936834-00-3P 936834-01-4P 936834-02-5P  
 936834-03-6P 936834-10-5P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (photoacid generator for photoresist)

RN 936834-00-3 ZCAPLUS

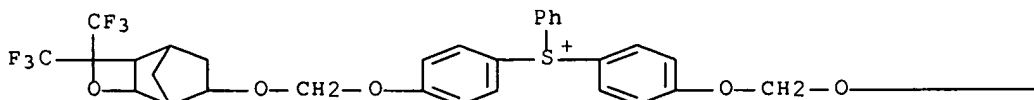
CN Sulfonium, bis[4-[[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-8-yl]oxy]methoxy]phenyl]phenyl-, 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefulfonate (1:1) (CA INDEX NAME)

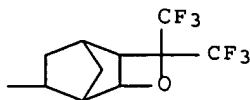
CM 1

CRN 936833-99-7

CMF C40 H35 F12 O6 S

PAGE 1-A

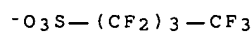




CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



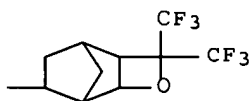
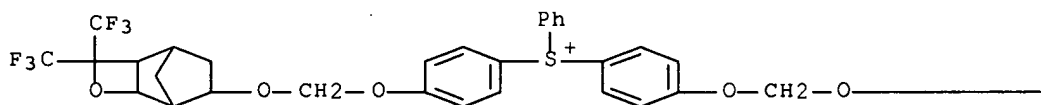
RN 936834-01-4 ZCAPLUS

CN Sulfonium, bis[4-[[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-8-yl]oxy]methoxy]phenyl]phenyl-, 1,1,1-trifluoromethanesulfonate (1:1)  
(CA INDEX NAME)

CM 1

CRN 936833-99-7

CMF C40 H35 F12 O6 S

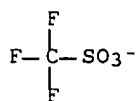


CM 2

CRN 37181-39-8

CMF C F3 O3 S

10/553600



RN 936834-02-5 ZCAPLUS

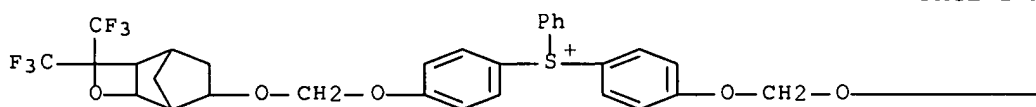
CN Sulfonium, bis[4-[[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-8-yl]oxy]methoxy]phenyl]phenyl-, 1,1,2,2,3,3,4,4-octafluoro-4-(1,2,2,2-tetrafluoroethoxy)-1-butanesulfonate (1:1) (CA INDEX NAME)

CM 1

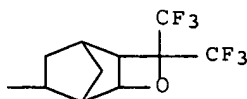
CRN 936833-99-7

CMF C40 H35 F12 O6 S

PAGE 1-A



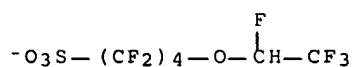
PAGE 1-B



CM 2

CRN 870466-11-8

CMF C6 H F12 O4 S



RN 936834-03-6 ZCAPLUS

CN Sulfonium, bis[4-[[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-8-yl]oxy]methoxy]phenyl]phenyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (CA INDEX NAME)

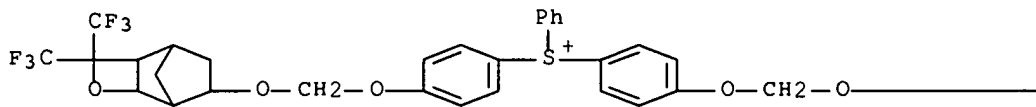
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CRN 936833-99-7

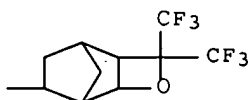
10/553600

CMF C40 H35 F12 O6 S

PAGE 1-A



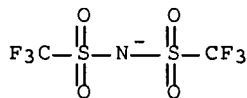
PAGE 1-B



CM 2

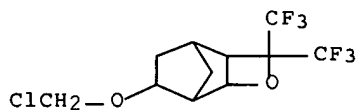
CRN 98837-98-0

CMF C2 F6 N O4 S2



RN 936834-10-5 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane, 8-(chloromethoxy)-4,4-bis(trifluoromethyl)- (CA INDEX NAME)



L13 ANSWER 3 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:63540 ZCAPLUS Full-text

DOCUMENT NUMBER: 146:172270

TITLE: Photoactive compounds for photoresist compositions  
INVENTOR(S): Rahman, M. Dalil; Houlihan, Francis M.; Padmanaban, Munirathna; Lee, Sangho; Dammel, Ralph R.; Rentkiewicz, David; Anyadiegwu, Clement

PATENT ASSIGNEE(S): AZ Electronic Material USA Corp., USA



10/553600

SOURCE: PCT Int. Appl., 89pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

| PATENT NO.             | KIND   | DATE     | APPLICATION NO. | DATE       |
|------------------------|--|----------|-----------------|------------|
| WO 2007007175          | A2   | 20070118 | WO 2006-IB1931  | 20060707   |
| WO 2007007175          | A3   | 20070405 |                 |            |
| W:                     | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW |          |                 |            |
| RW:                    | AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA   |          |                 |            |
| US 2007015084          | A1   | 20070118 | US 2006-355762  | 20060216   |
| PRIORITY APPLN. INFO.: |  |          | US 2005-179886  | A 20050712 |
|                        |  |          | US 2006-355762  | A 20060216 |

OTHER SOURCE(S): MARPAT 146:172270

AB The invention relates to a compound of formula A-X-B, where (i) A-X-B form an ionic compound  $A_iX_iB_i$  where  $A_i$  and  $B_i$  are each individually an organic onium cation (e.g., sulfonium, iodonium) and  $X_i$  is an anion bearing  $SO_3^-$  groups or (ii) A-X-B form a non-ionic compound. The photoactive compds. are useful in photoresist compns. in the field of microlithog. for imaging neg. and pos. patterns in production of semiconductor devices.

IT 919794-67-5 919794-69-7 919794-71-1  
919794-73-3 919794-75-5 919794-76-6  
919794-78-8 919794-79-9

RL: TEM (Technical or engineered material use); USES (Uses)  
(photoactive compds. for photoresist compns. for microlithog.)

RN 919794-67-5 ZCAPLUS

CN Sulfonium, bis[4-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]methoxy]phenyl]phenyl-, 1,1,2,2,3,3,4,4-octafluoro-1,4-butanedisulfonate (2:1) (CA INDEX NAME)

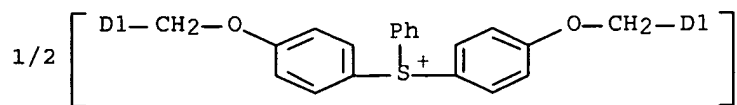
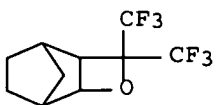
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CCI IDS

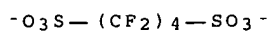
10/553600



CM 2

CRN 109203-20-5

CMF C4 F8 O6 S2



RN 919794-69-7 ZCAPLUS

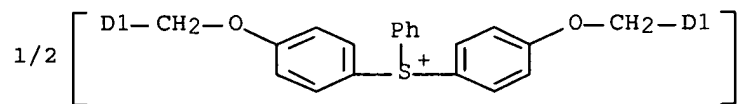
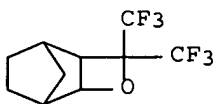
CN Sulfonium, bis[4-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]methoxy]phenyl]phenyl-, 1,2-ethanedisulfonate (2:1) (CA INDEX NAME)

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CRN 919794-66-4

CMF C40 H35 F12 O4 S

CCI IDS

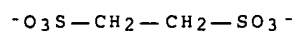


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CRN 56383-76-7

CMF C2 H4 O6 S2

10/553600



RN 919794-71-1 ZCAPLUS

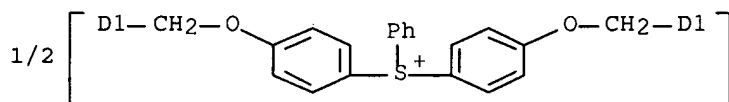
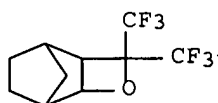
CN Sulfonium, bis[4-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]methoxy]phenyl]phenyl-, 1,1,2,2-tetrafluoro-1,2-ethanedisulfonate (2:1) (CA INDEX NAME)

CM 1

CRN 919794-66-4

CMF C40 H35 F12 O4 S

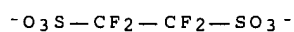
CCI IDS



CM 2

CRN 109203-16-9

CMF C2 F4 O6 S2



RN 919794-73-3 ZCAPLUS

CN Sulfonium, bis[4-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]methoxy]phenyl]phenyl-, 1,1,2,2,3,3-hexafluoro-1,3-propanedisulfonate (2:1) (CA INDEX NAME)

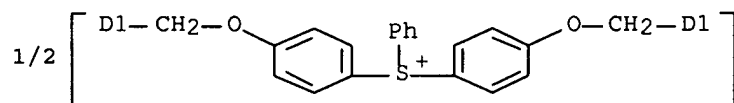
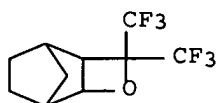
CM 1

CRN 919794-66-4

CMF C40 H35 F12 O4 S

CCI IDS

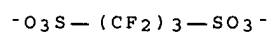
10/553600



CM 2

CRN 109203-18-1

CMF C3 F6 O6 S2



RN 919794-75-5 ZCAPLUS

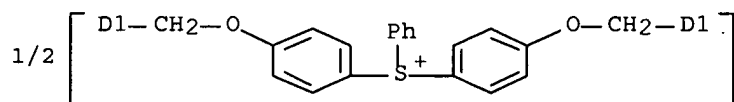
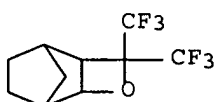
CN Sulfonium, bis[4-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]methoxy]phenyl]phenyl-, 2,2,3,3,4,4-hexafluoro-4-sulfobutanoate (2:1) (CA INDEX NAME)

CM 1

CRN 919794-66-4

CMF C40 H35 F12 O4 S

CCI IDS

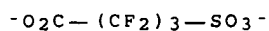


CM 2

CRN 919476-44-1

CMF C4 F6 O5 S

10/553600



RN 919794-76-6 ZCAPLUS

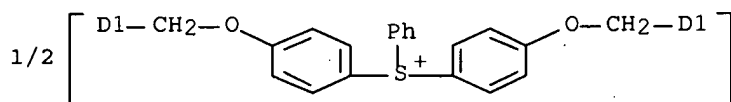
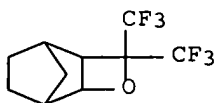
CN Sulfonium, bis[4-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]methoxy]phenyl]phenyl-, 2,2,3,3,4,4,5,5-octafluoro-5-sulfopentanoate (2:1) (CA INDEX NAME)

CM 1

CRN 919794-66-4

CMF . C40 H35 F12 O4 S

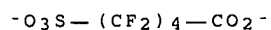
CCI IDS



CM 2

CRN 919476-46-3

CMF C5 F8 O5 S



RN 919794-78-8 ZCAPLUS

CN Sulfonium, bis[4-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]methoxy]phenyl]phenyl-, methanedisulfonate (2:1) (CA INDEX NAME)

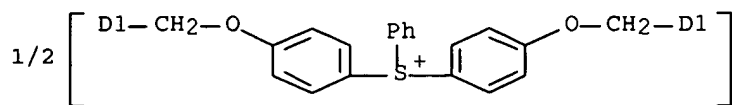
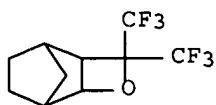
CM 1

CRN 919794-66-4

CMF C40 H35 F12 O4 S

CCI IDS

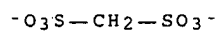
10/553600



CM 2

CRN 70526-77-1

CMF C H2 O6 S2



RN 919794-79-9 ZCAPLUS

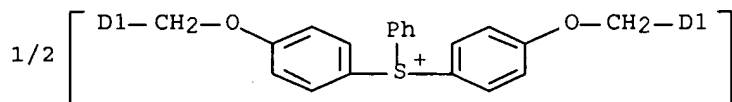
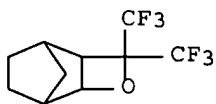
CN Sulfonium, bis[4-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]methoxy]phenyl]phenyl-, 1,1-difluoromethanedisulfonate (2:1)  
(CA INDEX NAME)

CM 1

CRN 919794-66-4

CMF C40 H35 F12 O4 S

CCI IDS

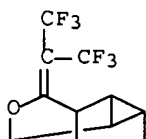


CM 2

CRN 303734-45-4

CMF C F2 O6 S2

L13 ANSWER 4 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2006:875001 ZCAPLUS Full-text  
 DOCUMENT NUMBER: 146:461583  
 TITLE: Product class 14: alkyl- and cycloalkylketenes  
 AUTHOR(S): Tidwell, T. T.  
 CORPORATE SOURCE: Department of Chemistry, University of Toronto,  
 Toronto, ON, M5S 3H6, Can.  
 SOURCE: Science of Synthesis (2006), 23, 569-678  
 CODEN: SSCYJ9  
 PUBLISHER: Georg Thieme Verlag  
 DOCUMENT TYPE: Journal; General Review  
 LANGUAGE: English  
 AB A review of methods to prepare alkyl- and cycloalkylketenes with applications  
 to organic synthesis.  
 IT 25636-94-6P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (review of preparation of alkyl- and cycloalkylketenes with applications to  
 organic synthesis)  
 RN 25636-94-6 ZCAPLUS  
 CN 3,5,6-Metheno-2H-cyclopenta[b]furan, hexahydro-2-[2,2,2-trifluoro-1-  
 (trifluoromethyl)ethylidene]- (CA INDEX NAME)



REFERENCE COUNT: 322 THERE ARE 322 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L13 ANSWER 5 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2006:283684 ZCAPLUS Full-text  
 DOCUMENT NUMBER: 145:17678  
 TITLE: New Amorphous Fluoropolymers of Tetrafluoroethylene  
 with Fluorinated and Non-Fluorinated Tricyclononenes.  
 Semiconductor Photoresists for Imaging at 157 and 193  
 nm  
 AUTHOR(S): Feiring, Andrew E.; Crawford, Michael K.; Farnham,  
 William B.; Feldman, Jerald; French, Roger H.; Junk,  
 Christopher P.; Leffew, Kenneth W.; Petrov, Viacheslav  
 A.; Qiu, Weiming; Schadt, Frank L., III; Tran, Hoang  
 V.; Zumsteg, Fredrick C.  
 CORPORATE SOURCE: Experimental Station, DuPont Central Research &  
 Development, Wilmington, DE, 19880-0328, USA  
 SOURCE: Macromolecules (2006), 39(9), 3252-3261  
 CODEN: MAMOBX; ISSN: 0024-9297  
 PUBLISHER: American Chemical Society

10/553600

DOCUMENT TYPE: Journal

LANGUAGE: English

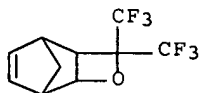
AB Twenty-two tricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene (TCN) or 3-oxatricyclononene monomers, having fluorinated or nonfluorinated substituents on the four-membered rings, were prepared by cycloaddn. reactions of functionalized olefins with norbornadiene or quadricyclane. Radical polymns. with tetrafluoroethylene (TFE) and/or TFE and acrylates provided amorphous polymers with high solubility in standard organic solvents. The TFE/TCN dipolymers typically have glass transition temps. of over 200° C, substantially higher than TFE copolymers with norbornene. Perfluoroalkyl sulfonyl fluoride groups can be incorporated in the side chains of the TCN monomers giving soluble copolymers. Polymers which also incorporated acrylate monomers were prepared using a semibatch process to control composition. Selected polymers incorporating tertiary alkyl ester groups from the TCN monomer or acrylates have shown good image formation when compounded with a photoacid generator, imaged with 157 or 193 nm light, and developed using aqueous base.

IT 658074-29-4 658074-30-7

RL: RCT (Reactant); RACT (Reactant or reagent)  
(monomer; synthesis of amorphous fluoropolymers for vacuum-UV lithog. photoresist)

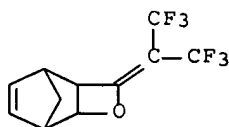
RN 658074-29-4 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4,4-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 658074-30-7 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]- (9CI) (CA INDEX NAME)

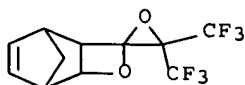


IT 658074-42-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; synthesis of amorphous fluoropolymers for vacuum-UV lithog. photoresist)

RN 658074-42-1 ZCAPLUS

CN Spiro[3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene-4,2'-oxirane], 3',3'-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)





IT 658074-36-3P 658074-38-5P 658074-43-2P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation and properties of amorphous fluoropolymers for chemical amplified

photoresist formulation for 157 or 193 nm lithog.)

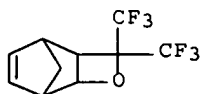
RN 658074-36-3 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4,4-bis(trifluoromethyl)-, polymer with tetrafluoroethene (9CI) (CA INDEX NAME)

CM 1

CRN 658074-29-4

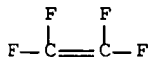
CMF C10 H8 F6 O



CM 2

CRN 116-14-3

CMF C2 F4



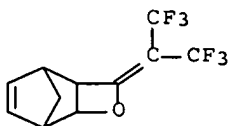
RN 658074-38-5 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-, polymer with tetrafluoroethene (9CI) (CA INDEX NAME)

CM 1

CRN 658074-30-7

CMF C11 H8 F6 O



10/553600

CM 2

CRN 116-14-3

CMF C2 F4



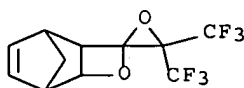
RN 658074-43-2 ZCAPLUS

CN Spiro[3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene-4,2'-oxirane],  
3',3'-bis(trifluoromethyl)-, polymer with tetrafluoroethene (9CI) (CA  
INDEX NAME)

CM 1

CRN 658074-42-1

CMF C11 H8 F6 O2



CM 2

CRN 116-14-3

CMF C2 F4



REFERENCE COUNT: 93 THERE ARE 93 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 6 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1147973 ZCAPLUS Full-text

DOCUMENT NUMBER: 145:230334

TITLE: Cycloaddition of norbornadiene to fluorine-containing  
heteroaddends

AUTHOR(S): Vasil'ev, N. V.; Truskanova, T. D.; Buzaev, A. V.;  
Romanov, D. V.; Zatonskii, G. V.

CORPORATE SOURCE: Military University of Radiation, Chemical, and  
Biological Defence, Moscow, 107005, Russia

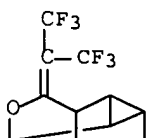
SOURCE: Russian Chemical Bulletin (2005), 54(4), 1038-1040  
CODEN: RCBUEY; ISSN: 1066-5285

PUBLISHER: Springer Science+Business Media, Inc.

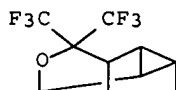
DOCUMENT TYPE: Journal

10/553600

LANGUAGE: English  
OTHER SOURCE(S): CASREACT 145:230334  
AB Cycloaddn. reactions of norbornadiene with fluorinated carbonyl derivs. (hexafluoro-acetone, dichlorotetrafluoroacetone, trifluoroacetonitrile, and N-trifluoroacetylhexafluoro-propan-2-imine) were studied. The reactions followed the concerted mechanism. The reaction with bis(trifluoromethyl)ketene gave a mixture of tricyclene [2 + 2]- and [2 + 2 + 2]-cyclo-adducts.  
IT 25636-94-6P 792923-50-3P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of fluorine-containing hetero-tricyclic compds. via cycloaddn. of fluorocarbonyl compds. with norbornadiene)  
RN 25636-94-6 ZCAPLUS  
CN 3,5,6-Metheno-2H-cyclopenta[b]furan, hexahydro-2-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]- (CA INDEX NAME)



RN 792923-50-3 ZCAPLUS  
CN 3,5,6-Metheno-2H-cyclopenta[b]furan, hexahydro-2,2-bis(trifluoromethyl)-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 7 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2005:429275 ZCAPLUS Full-text  
DOCUMENT NUMBER: 142:472609  
TITLE: Polymers in photoresist compositions and patterning process  
INVENTOR(S): Harada, Yuji; Kawai, Yoshio; Sasago, Masaru; Endo, Masayuki; Kishimura, Shirrji; Maeda, Kazuhiko; Komoriya, Haruhiko; Yamanaka, Kazuhiro  
PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan; Matsushita Electric Industrial Co., Ltd.; Central Glass Co., Ltd.  
SOURCE: U.S. Pat. Appl. Publ., 27 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

10/553600

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE       |
|------------------------|------|----------|-----------------|------------|
| US 2005106499          | A1   | 20050519 | US 2004-969097  | 20041021   |
| US 7125643             | B2   | 20061024 |                 |            |
| JP 2005146252          | A    | 20050609 | JP 2004-168247  | 20040607   |
| KR 2005039680          | A    | 20050429 | KR 2004-85121   | 20041023   |
| PRIORITY APPLN. INFO.: |      |          | JP 2003-363181  | A 20031023 |

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The invention relates to a polymer comprising recurring units of formula (I) and recurring units of formulas (II), (III), (IV), and [CH<sub>2</sub>-CH(SO<sub>2</sub>-O-R<sub>6</sub>)] wherein R<sub>1</sub> is F or fluoroalkyl, R<sub>2</sub> is a single bond or an alkylene or fluoroalkylene, R<sub>3</sub> and R<sub>4</sub> are H, F, alkyl or fluoroalkyl, at least one of R<sub>3</sub> and R<sub>4</sub> contains F, R<sub>5</sub> is H or an acid labile group, R<sub>6</sub> is an acid labile group, adhesive group, alkyl or fluoroalkyl, and a is 1 or 2 is used as a base resin to formulate a resist composition which has advantages including high transparency to radiation having a wavelength of up to 200 nm, substrate adhesion, developer affinity and dry etching resistance.

IT 851718-00-8P 851718-10-0P 851718-69-9P  
851719-16-9P 851719-45-4P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polymers in photoresist compns.)

RN 851718-00-8 ZCAPLUS

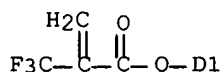
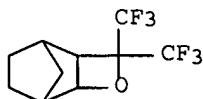
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl ester, polymer with [[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]oxy)methyl 2-(trifluoromethyl)-2-propenoate and 5-(ethenyloxy)- $\alpha,\alpha,\alpha',\alpha'$ -tetrakis(trifluoromethyl)-1,3-cyclohexanedimethanol (9CI) (CA INDEX NAME)

CM 1

CRN 851717-99-2

CMF C14 H11 F9 O3

CCI IDS

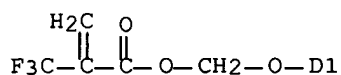
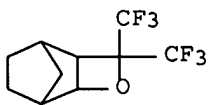


CM 2

CRN 824971-60-0

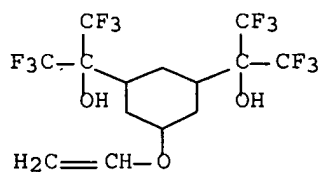
10/553600

CMF C15 H13 F9 O4  
CCI IDS



CM 3

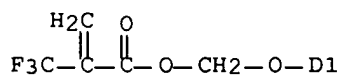
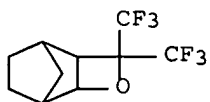
CRN 691410-53-4  
CMF C14 H14 F12 O3



RN 851718-10-0 ZCAPLUS  
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with  
[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or  
8)-yl]oxy]methyl 2-(trifluoromethyl)-2-propenoate and 5-(ethenyloxy)-  
 $\alpha,\alpha,\alpha',\alpha'$ -tetrakis(trifluoromethyl)-1,3-  
cyclohexanedimethanol (9CI) (CA INDEX NAME)

CM 1

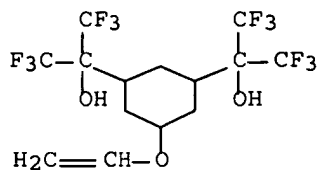
CRN 824971-60-0  
CMF C15 H13 F9 O4  
CCI IDS



CM 2

CRN 691410-53-4

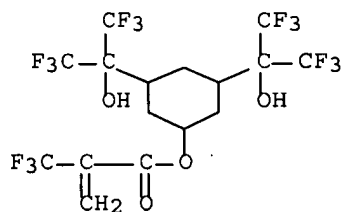
CMF C14 H14 F12 O3



CM 3

CRN 585569-92-2

CMF C16 H13 F15 O4



RN 851718-69-9 ZCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl ester, polymer with  $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]hept-5-ene-2-ethanol and [[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]oxy)methyl 2-(trifluoromethyl)-2-propenoate (9CI) (CA INDEX NAME)

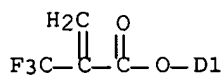
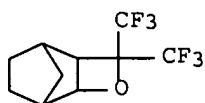
CM 1

CRN 851717-99-2

CMF C14 H11 F9 O3

CCI IDS

10/553600

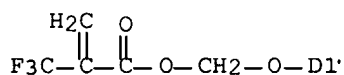
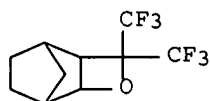


CM 2

CRN 824971-60-0

CMF C15 H13 F9 O4

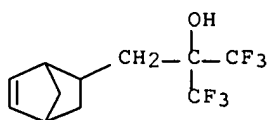
CCI IDS



CM 3

CRN 196314-61-1

CMF C11 H12 F6 O



RN 851719-16-9 ZCAPLUS

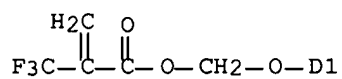
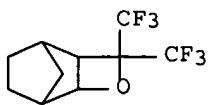
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with  $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]hept-5-ene-2-ethanol, [[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]oxy]methyl 2-(trifluoromethyl)-2-propenoate and 2,2,2-trifluoro-1-(trifluoromethyl)ethyl ethenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 824971-60-0

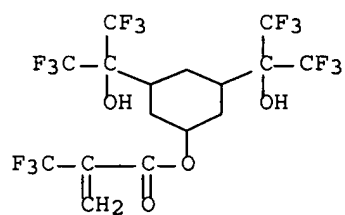
10/553600

CMF C15 H13 F9 O4  
CCI IDS



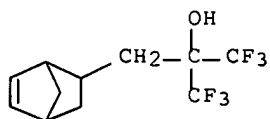
CM 2

CRN 585569-92-2  
CMF C16 H13 F15 O4



CM 3

CRN 196314-61-1  
CMF C11 H12 F6 O

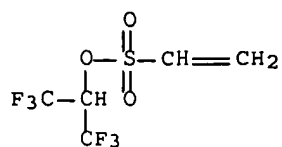


CM 4

CRN 162872-99-3  
CMF C5 H4 F6 O3 S



10/553600



RN 851719-45-4 ZCAPLUS

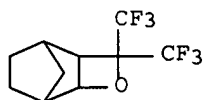
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with [[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]oxy)methyl 2-(trifluoromethyl)-2-propenoate and 7(or 8)-(ethenyloxy)-4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane (9CI) (CA INDEX NAME)

CM 1

CRN 851719-44-3

CMF C12 H12 F6 O2

CCI IDS



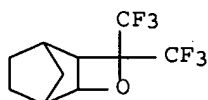
H<sub>2</sub>C=CH-O-D1

CM 2

CRN 824971-60-0

CMF C15 H13 F9 O4

CCI IDS

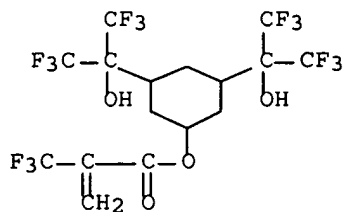


$\begin{array}{c} \text{H}_2\text{C} \\ \parallel \\ \text{F}_3\text{C}-\text{C}-\text{C}-\text{O}-\text{CH}_2-\text{O}-\text{D1} \\ \parallel \\ \text{O} \end{array}$

CM 3

CRN 585569-92-2

CMF C16 H13 F15 O4



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 8 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:370930 ZCAPLUS Full-text

DOCUMENT NUMBER: 142:420068

TITLE: Polymers, resist compositions and patterning process

INVENTOR(S): Harada, Yuji; Hatakeyama, Jun; Kawai, Yoshio; Sasago, Masaru; Endo, Masayuki; Kishimura, Shinji; Maeda, Kazuhiko; Komoriya, Haruhiko; Yamanaka, Kazuhiro  
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan; Matsushita Electric Industrial Co., Ltd.; Central Glass Co., Ltd.

SOURCE: U.S. Pat. Appl. Publ., 21 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

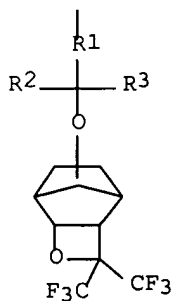
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE       |
|------------------------|------|----------|-----------------|------------|
| US 2005089797          | A1   | 20050428 | US 2004-968971  | 20041021   |
| US 7067231             | B2   | 20060627 |                 |            |
| JP 2005126558          | A    | 20050519 | JP 2003-363134  | 20031023   |
| PRIORITY APPLN. INFO.: |      |          | JP 2003-363134  | A 20031023 |

GI



I

10/553600

AB A polymer comprising recurring units having a partial structure of formula I (R1 = single bond, alkylene, fluoroalkylene; R2,3 = H, alkyl, fluoroalkyl; at least one of R2 and R3 contains at least one fluorine atom) is used as a base resin to formulate a resist composition which has advantages including high transparency to radiation having a wavelength of up to 200 nm, substrate adhesion, developer affinity and dry etching resistance.

IT 850559-61-4P 850559-62-5P 850559-64-7P

850559-65-8P 850559-66-9P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polymers for resist compns. and patterning process)

RN 850559-61-4 ZCAPLUS

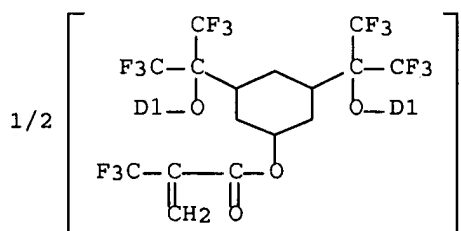
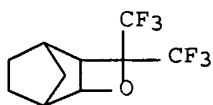
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[1-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]oxy]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with  $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]hept-5-ene-2-ethanol and 1,1-dimethylethyl 2-(trifluoromethyl)-2-propenoate (9CI)  
(CA INDEX NAME)

CM 1

CRN 850559-60-3

CMF C36 H29 F27 O6

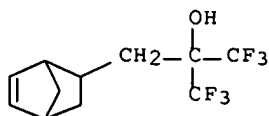
CCI IDS



CM 2

CRN 196314-61-1

CMF C11 H12 F6 O

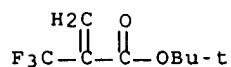


10/553600

CM 3

CRN 105935-24-8

CMF C8 H11 F3 O2



RN 850559-62-5 ZCAPLUS

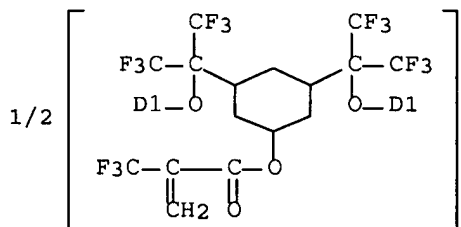
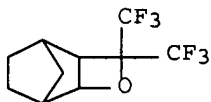
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[1-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]oxy]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with 1,1-dimethylethyl 2-(trifluoromethyl)-2-propenoate and 5-(ethenyloxy)- $\alpha,\alpha,\alpha',\alpha'$ -tetrakis(trifluoromethyl)-1,3-cyclohexanedimethanol (9CI) (CA INDEX NAME)

CM 1

CRN 850559-60-3

CMF C36 H29 F27 O6

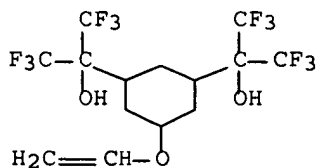
CCI IDS



CM 2

CRN 691410-53-4

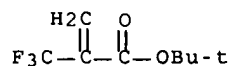
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CM 3

CRN 105935-24-8

CMF C8 H11 F3 O2



RN 850559-64-7 ZCAPLUS

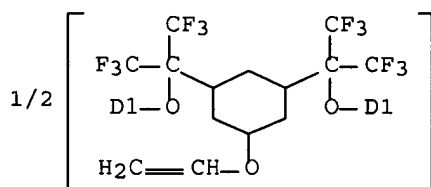
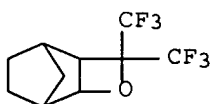
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with 1,1-dimethylethyl 2-(trifluoromethyl)-2-propenoate and 7,7'(or 8,8')-[[5-(ethenyloxy)-1,3-cyclohexanediyl]bis[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]oxy]]bis[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane] (9CI) (CA INDEX NAME)

CM 1

CRN 850559-63-6

CMF C34 H30 F24 O5

CCI IDS

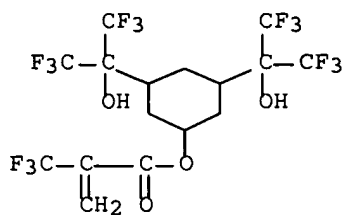


CM 2

CRN 585569-92-2

CMF C16 H13 F15 O4

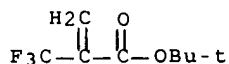
10/553600



CM 3

CRN 105935-24-8

CMF C8 H11 F3 O2



RN 850559-65-8 ZCAPLUS

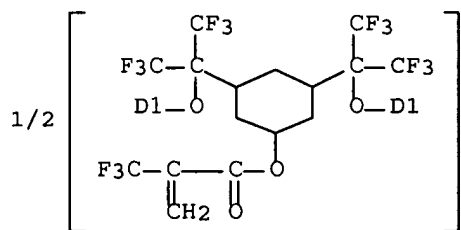
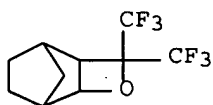
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[1-[[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]oxy]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with 3,5-bis[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl 2-(trifluoromethyl)-2-propenoate and 5-(ethenyloxy)- $\alpha,\alpha,\alpha',\alpha'$ -tetrakis(trifluoromethyl)-1,3-cyclohexanedimethanol (9CI) (CA INDEX NAME)

CM 1

CRN 850559-60-3

CMF C36 H29 F27 O6

CCI IDS

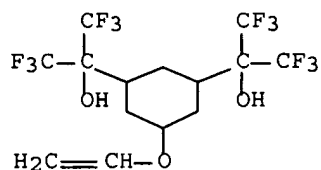


10/553600

CM 2

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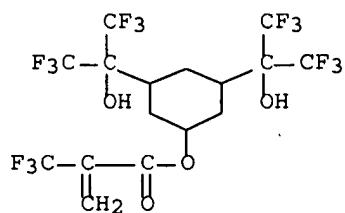
CMF C14 H14 F12 O3



CM 3

CRN 585569-92-2

CMF C16 H13 F15 O4



RN 850559-66-9 ZCAPLUS

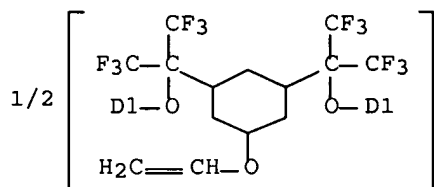
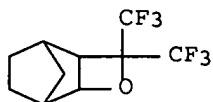
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with 7,7' (or 8,8') - [[5-(ethenyloxy)-1,3-cyclohexanediyl]bis[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]oxy]]bis[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane] (9CI) (CA INDEX NAME)

CM 1

CRN 850559-63-6

CMF C34 H30 F24 O5

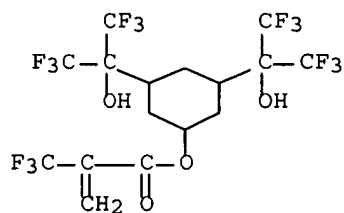
CCI IDS



CM 2

CRN 585569-92-2

CMF C16 H13 F15 O4



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 9 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:55218 ZCAPLUS Full-text

DOCUMENT NUMBER: 142:135129

TITLE: Cyclic fluorine compounds, polymerizable fluoromonomers, fluoropolymers, and resist materials containing the fluoropolymers and method for pattern formation

INVENTOR(S): Sumida, Shinichi; Komoriya, Haruhiko; Maeda, Kazuhiko

PATENT ASSIGNEE(S): Central Glass Company, Limited, Japan

SOURCE: PCT Int. Appl., 49 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|--|------|----------|-----------------|----------|
| WO 2005005404  | A1   | 20050120 | WO 2004-JP9680  | 20040701 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, |      |          |                 |          |



LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO,  
 NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ,  
 TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,  
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,  
 EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,  
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 SN, TD, TG

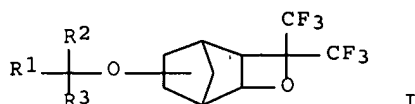
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|---------------|----|----------|----------------|----------|
| JP 2005029527 | A  | 20050203 | JP 2003-272269 | 20030709 |
| US 2006194143 | A1 | 20060831 | US 2005-64818  | 20050225 |
| US 2006270864 | A1 | 20061130 | US 2006-563557 | 20060627 |
| US 7232917    | B2 | 20070619 |                |          |

PRIORITY APPLN. INFO.:

|                |   |          |
|----------------|---|----------|
| JP 2003-272269 | A | 20030709 |
| WO 2004-JP9680 | W | 20040701 |

OTHER SOURCE(S): MARPAT 142:135129

GI



AB The invention provides cyclic fluorine compds. I, wherein R1 = halogeno and R2, R3 = H or a hydrocarbon group which is a straight-chain, branched, or cyclic C1-25 hydrocarbon group or an aromatic hydrocarbon group and may contain halogen, oxygen, nitrogen, or sulfur. The invention discloses (i) polymerizable fluoro- monomers derived from the compds., (ii) fluoropolymers obtained by polymerization or copolymn. of the compds. or fluoromonomers, (iii) resist materials containing the fluoropolymers, and (iv) a method for pattern formation by using the fluoropolymers. The invention can provide polymers suitable for resist materials (particularly, vacuum-UV resist materials) which exhibit high transparency in a wide wavelength region of from UV region to near IR region, high tight adhesion to substrates, excellent film-forming properties, high etching resistance, and high glass transition temps. The method for pattern formation by using the fluoropolymers is suitable for the formation of high-resolution patterns. Thus, 14.2 g 4,4-bis(trifluoromethyl)-3- oxatricyclo[4.2.1.0<sup>2,5</sup>]nonanol and 2.9 g paraformaldehyde were reacted in the presence of hydrochloride, and reacted with 2-(trifluoromethyl)-2- propenoic acid to give a fluoro-containing ethylenically unsatd. monomer, 4.8 g of which was polymerized with 2.8 g  $\alpha,\alpha$ -bis(trifluoromethyl)- bicyclo[2.2.1]hept-5-ene-2-ethanol at 60° for 20 h to give a copolymer with Mw 12,100 and polydispersity 1.5, which was dissolved in propylene glycol Me acetate, 2 parts TPS 105 acid generator was added therein, applied on a silicon wafer, prebaked at 120°, irradiated through a photomask by an UV-ray, and developed, showing good adhesion, developability, and good etchability.

IT 824971-56-4P

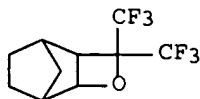
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; preparation of cyclic fluorine compds. and polymerizable fluoromonomers for resist materials)

RN 824971-56-4 ZCAPLUS

10/553600

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane, 7(or 8)-(chloromethoxy)-4,4-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



ClCH<sub>2</sub>-O-D1

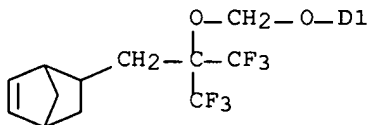
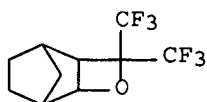
IT 824971-58-6P 824971-60-0P 824971-63-3P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(monomer; preparation of cyclic fluorine compds. and polymerizable fluoromonomers for resist materials)

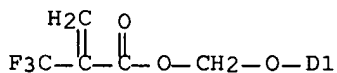
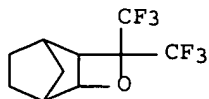
RN 824971-58-6 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane, 7(or 8)-[[1-(bicyclo[2.2.1]hept-5-en-2-ylmethyl)-2,2,2-trifluoro-1-(trifluoromethyl)ethoxy]methoxy]-4,4-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 824971-60-0 ZCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, [[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]oxy]methyl ester (9CI) (CA INDEX NAME)

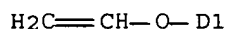
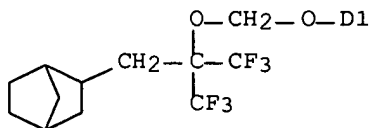
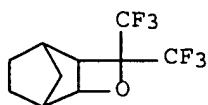


RN 824971-63-3 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane, 7(or 8)-[[1-[[5(or 6)-

10/553600

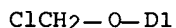
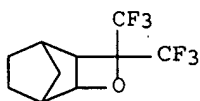
(ethenyloxy)bicyclo[2.2.1]hept-2-yl)methyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethoxy]methoxy]-4,4-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



IT 824971-56-4DP, reaction products with hydroxy-containing fluoropolymers 824971-65-5P 824971-68-8P 824971-70-2P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of cyclic fluorine compds. and polymerizable fluoromonomers for resist materials)

RN 824971-56-4 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane, 7(or 8)-(chloromethoxy)-4,4-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 824971-65-5 ZCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with 7(or 8)-[[1-(bicyclo[2.2.1]hept-5-en-2-ylmethyl)-2,2,2-trifluoro-1-(trifluoromethyl)ethoxy]methoxy]-4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane (9CI) (CA INDEX NAME)

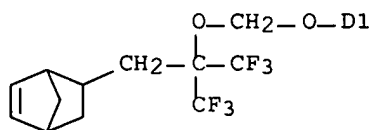
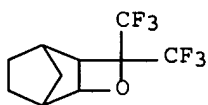
CM 1

CRN 824971-58-6

CMF C22 H22 F12 O3

CCI IDS

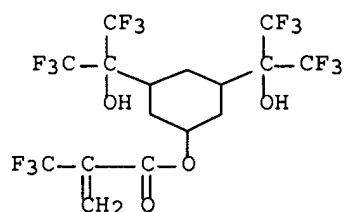
10/553600



CM 2

CRN 585569-92-2

CMF C16 H13 F15 O4



RN 824971-68-8 ZCAPLUS

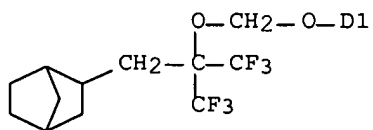
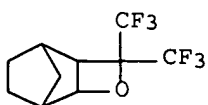
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with 7(or 8)-[[1-[[5(or 6)-(ethenyloxy)bicyclo[2.2.1]hept-2-yl]methyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethoxy]methoxy]-4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane (9CI) (CA INDEX NAME)

CM 1

CRN 824971-63-3

CMF C24 H26 F12 O4

CCI IDS



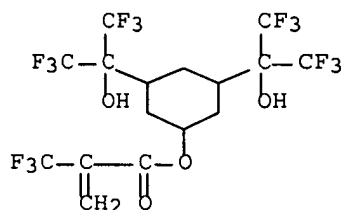
H<sub>2</sub>C=CH-O-D1

10/553600

CM 2

CRN 585569-92-2

CMF C16 H13 F15 O4



RN 824971-70-2 ZCAPLUS

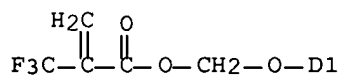
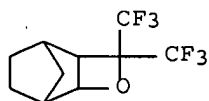
CN 2-Propenoic acid, 2-(trifluoromethyl)-, [[4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl]oxy]methyl ester, polymer with  $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]hept-5-ene-2-ethanol (9CI) (CA INDEX NAME)

CM 1

CRN 824971-60-0

CMF C15 H13 F9 O4

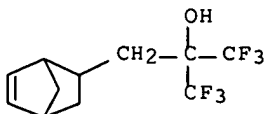
CCI IDS



CM 2

CRN 196314-61-1

CMF C11 H12 F6 O



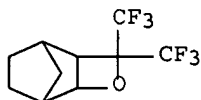
IT 824971-54-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of cyclic fluorine compds. and polymerizable fluoromonomers  
for  
resist materials)

RN 824971-54-2 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonanol, 4,4-bis(trifluoromethyl)- (9CI) (CA  
INDEX NAME)



D1-OH

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 10 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:965235 ZCAPLUS Full-text

DOCUMENT NUMBER: 141:417928

TITLE: Fluorinated cyclic compound, polymerizable  
fluoromonomer, fluoropolymer, resist material  
comprising the same, and method of forming pattern  
with the same

INVENTOR(S): Komoriya, Haruhiko; Sumida, Shinichi; Kawamura,  
Katsunori; Kobayashi, Satoru; Miyazawa, Satoru; Maeda,  
Kazuhiko

PATENT ASSIGNEE(S): Central Glass Company Limited, Japan

SOURCE: PCT Int. Appl., 61 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND   | DATE     | APPLICATION NO. | DATE     |
|---------------|--|----------|-----------------|----------|
| WO 2004096786 | A1   | 20041111 | WO 2004-JP4007  | 20040324 |
| W:            | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW |          |                 |          |
| RW:           | BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG   |          |                 |          |
| JP 2004323422 | A  | 20041118 | JP 2003-120921  | 20030425 |

10/553600

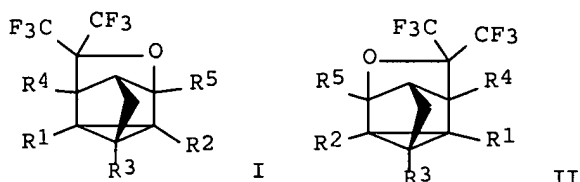
US 2006135744  
PRIORITY APPLN. INFO.:

A1 20060622  
MARPAT 141:417928

US 2005-553600  
JP 2003-120921  
WO 2004-JP4007

20051018  
A 20030425  
W 20040324

OTHER SOURCE(S):  
GI



AB A novel fluorinated cyclic compound which has an oxacyclopentane or oxacyclobutane structure derived from a norbornadiene compound and hexafluoroacetone and which may be represented by the following formula I or II (R1-5 = H, alkyl, hydroxy, halo, halogenated alkyl, carbonol, hexafluorocarbonol); a fluoropolymer obtained by polymerizing or copolymerizing the fluorinated cyclic compound or a derivative thereof; an excellent resist material comprising the fluoropolymer; and a method of forming a fine pattern with the resist material.

IT 792923-55-8P 792923-56-9P 792923-57-0P  
792923-58-1P 792930-64-4P 792930-67-7P  
792930-70-2P 792930-73-5P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(UV photoresist containing polymerizable fluoromonomer, fluoropolymer)

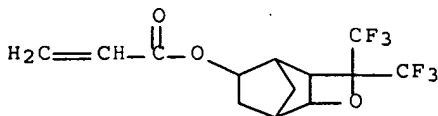
RN 792923-55-8 ZCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-yl 2-propenoate and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 792923-54-7

CMF C13 H12 F6 O3

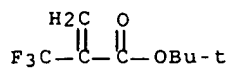


CM 2

CRN 105935-24-8

CMF C8 H11 F3 O2

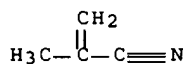
10/553600



CM 3

CRN 126-98-7

CMF C4 H5 N



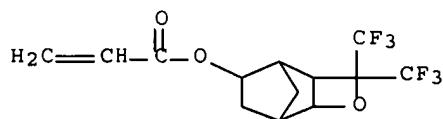
RN 792923-56-9 ZCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer  
with 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-yl  
2-propenoate and octafluorocyclopentene (9CI) (CA INDEX NAME)

CM 1

CRN 792923-54-7

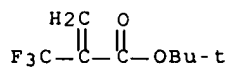
CMF C13 H12 F6 O3



CM 2

CRN 105935-24-8

CMF C8 H11 F3 O2



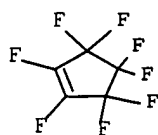
CM 3

CRN 559-40-0

CMF C5 F8



10/553600



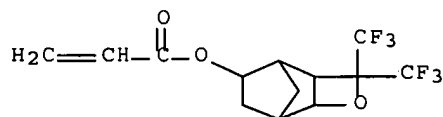
RN 792923-57-0 ZCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 3,5-bis[2,2,2-trifluoro-1-(methoxymethoxy)-1-(trifluoromethyl)ethyl]cyclohexyl ester, polymer with 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 792923-54-7

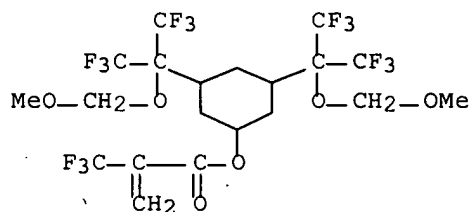
CMF C13 H12 F6 O3



CM 2

CRN 669768-41-6

CMF C20 H21 F15 O6



RN 792923-58-1 ZCAPLUS

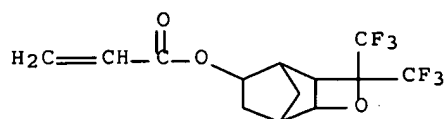
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-yl 2-propenoate and 5-ethenyl- $\alpha,\alpha,\alpha',\alpha'$ -tetrakis(trifluoromethyl)-1,3-benzenedimethanol (9CI) (CA INDEX NAME)

CM 1

CRN 792923-54-7

CMF C13 H12 F6 O3

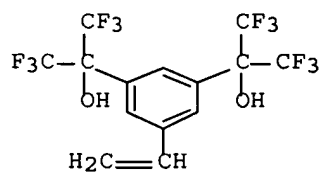
10/553600



CM 2

CRN 568587-26-8

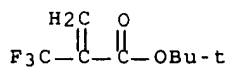
CMF C14 H8 F12 O2



CM 3

CRN 105935-24-8

CMF C8 H11 F3 O2



RN 792930-64-4 ZCAPLUS

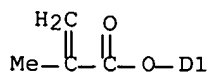
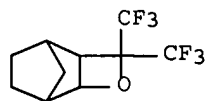
CN 2-Propenoic acid, 2-methyl-, 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 792930-62-2

CMF C14 H14 F6 O3

CCI IDS



10/553600

RN 792930-67-7 ZCAPLUS

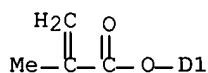
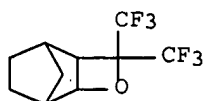
CN 2-Propenoic acid, 2-methyl-, 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl ester, polymer with 2-methyltricyclo[3.3.1.1<sup>3,7</sup>]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 792930-62-2

CMF C14 H14 F6 O3

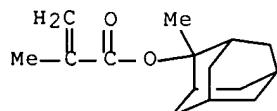
CCI IDS



CM 2

CRN 177080-67-0

CMF C15 H22 O2



RN 792930-70-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7(or 8)-yl ester, polymer with 2,5-furandione and 2-methyltricyclo[3.3.1.1<sup>3,7</sup>]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

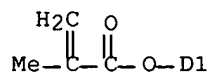
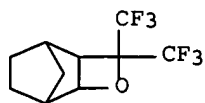
CM 1

CRN 792930-62-2

CMF C14 H14 F6 O3

CCI IDS

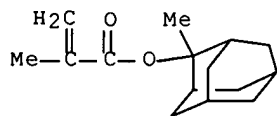
10/553600



CM 2

CRN 177080-67-0

CMF C15 H22 O2



CM 3

CRN 108-31-6

CMF C4 H2 O3



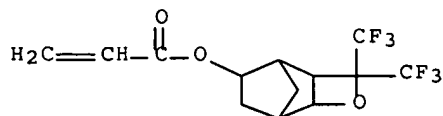
RN 792930-73-5 ZCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer  
with 4,4-bis(trifluoromethyl)-3-oxatricyclo[4.2.1.0.2,5]non-7-yl  
2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 792923-54-7

CMF C13 H12 F6 O3

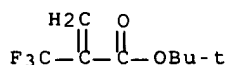


10/553600

CM 2

CRN 105935-24-8

CMF C8 H11 F3 O2



IT 792923-51-4P 792923-52-5P 792923-53-6P

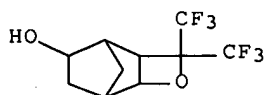
792930-55-3P 792930-58-6P 792930-60-0P

792930-62-2P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of fluorinated cyclic compound)

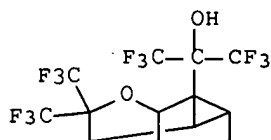
RN 792923-51-4 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonan-7-ol, 4,4-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



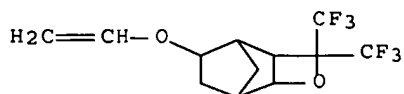
RN 792923-52-5 ZCAPLUS

CN 3,5,6-Metheno-6H-cyclopenta[b]furan-6-methanol, hexahydro-  
 $\alpha,\alpha,2,2$ -tetrakis(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 792923-53-6 ZCAPLUS

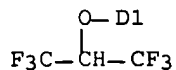
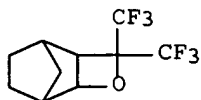
CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane, 7-(ethenyloxy)-4,4-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 792930-55-3 ZCAPLUS

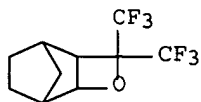
CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane, 4,4-bis(trifluoromethyl)-7(or 8)-[2,2,2-trifluoro-1-(trifluoromethyl)ethoxy]- (9CI) (CA INDEX NAME)

10/553600



RN 792930-58-6 ZCAPLUS

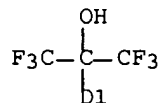
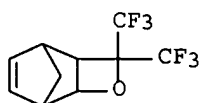
CN 3-Oxatricyclo[4.2.1.0.2,5]nonane, 7(or 8)-chloro-4,4-bis(trifluoromethyl)-  
(9CI) (CA INDEX NAME)



D1-Cl

RN 792930-60-0 ZCAPLUS

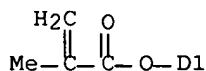
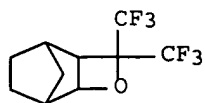
CN 3-Oxatricyclo[4.2.1.0.2,5]non-7-enemethanol,  $\alpha,\alpha,4,4$ -  
tetrakis(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 792930-62-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 4,4-bis(trifluoromethyl)-3-  
oxatricyclo[4.2.1.0.2,5]non-7(or 8)-yl ester (9CI) (CA INDEX NAME)

10/553600

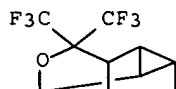


IT 792923-50-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of fluorinated cyclic compound)

RN 792923-50-3 ZCAPLUS

CN 3,5,6-Metheno-2H-cyclopenta[b]furan, hexahydro-2,2-bis(trifluoromethyl)-  
(9CI) (CA INDEX NAME)



REFERENCE COUNT:

6

THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 11 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:792125 ZCAPLUS Full-text

DOCUMENT NUMBER: 142:261345

TITLE: Quadricyclane-thermal cycloaddition to polyfluorinated  
carbonyl compounds

AUTHOR(S): Petrov, Viacheslav A.; Davidson, Frederic; Smart,  
Bruce E.

CORPORATE SOURCE: Experimental Station, Central Research and  
Development, E. I. Du Pont de Nemours and Co.,  
Wilmington, DE, 19880-0328, USA

SOURCE: Journal of Fluorine Chemistry (2004), 125(10),  
1543-1552

CODEN: JFLCAR; ISSN: 0022-1139

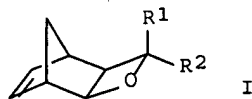
PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:261345

GI



AB Quadricyclane readily undergoes [2+2+2] cycloaddn. reactions with electron-deficient fluorinated carbonyl compds., such as hexafluoroacetone, trifluoroacetyl chloride, Me trifluoropyruvate,  $\alpha$ -(fluorosulfonyl)difluoroacetyl fluoride, and bis(trifluoromethyl)ketene, to give polyfluorinated 3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-enes I (R<sub>1</sub> = F, R<sub>2</sub> = F, F<sub>3</sub>C, FSO<sub>2</sub>CF<sub>2</sub>; R<sub>1</sub> = F<sub>3</sub>C, R<sub>2</sub> = Cl, Me, F<sub>3</sub>C, MeO<sub>2</sub>C, F<sub>3</sub>CCO, Ph, PhO; etc.) in high yields. Although trifluoroacetyl fluoride is less reactive, it slowly interacts with quadricyclane at ambient temperature. 1,1,1-Trifluoroacetone, trifluoroacetophenone, carbonyl difluoride, and CF<sub>3</sub>C(O)OCF<sub>3</sub> require higher temps. (60-90°) for the reaction, and Et trifluoroacetate is unreactive at 90°. Heating quadricyclane with the Et hemiacetal of trifluoroacetaldehyde gives the corresponding cycloadduct I (R<sub>1</sub> = H; R<sub>2</sub> = F<sub>3</sub>C) in 44% yield. The oxetane product from hexafluoroacetone is remarkably stable to both acids and bases, whereas the oxetanes with  $\alpha$ -F or Cl leaving groups are sensitive to acid-catalyzed rearrangement.

IT 845810-31-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

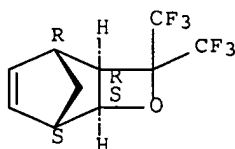
(preparation of norbornene-fused oxetanes and derivs. via thermal cycloaddn.

of quadricyclane with polyfluorinated carbonyl compds.)

RN 845810-31-3 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4,4-bis(trifluoromethyl)-, (1R,2R,5S,6S)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



IT 845810-33-5P 845810-46-0P 845894-09-9P

RL: SPN (Synthetic preparation); PREP (Preparation)

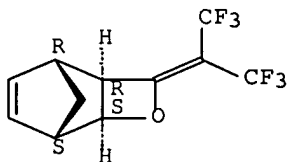
(preparation of norbornene-fused oxetanes and derivs. via thermal cycloaddn.

of quadricyclane with polyfluorinated carbonyl compds.)

RN 845810-33-5 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-, (1R,2R,5S,6S)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 845810-46-0 ZCAPLUS

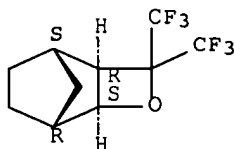
CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane, 4,4-bis(trifluoromethyl)-,



10/553600

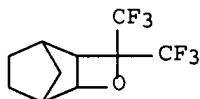
(1R,2S,5R,6S)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 845894-09-9 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]nonane, 7(or 8)-butyl-4,4-bis(trifluoromethyl)-,  
(1R,2S,5R,6S)-rel- (9CI) (CA INDEX NAME)



D1-Bu-n

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 12 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:143193 ZCAPLUS Full-text

DOCUMENT NUMBER: 140:181994

TITLE: Fluorinated monomers, fluorinated polymers having polycyclic groups with fused 4-membered heterocyclic rings, useful as photoresists, and processes for microlithography

INVENTOR(S): Feiring, Andrew E.; Schadt, Frank L., III; Petrov, Viacheslav Alexandrovich; Smart, Bruce Edmund; Farnham, William Brown

PATENT ASSIGNEE(S): E. I. Du Pont De Nemours and Company, USA

SOURCE: PCT Int. Appl., 43 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| -----         | ---  | -----    | -----           | -----    |
| WO 2004014960 | A2   | 20040219 | WO 2003-US25021 | 20030808 |
| WO 2004014960 | A3   | 20050224 |                 |          |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,  
 FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,  
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003259728 A1 20040225 AU 2003-259728 20030808  
 EP 1539690 A2 20050615 EP 2003-785132 20030808

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

CN 1675179 A 20050928 CN 2003-819298 20030808

JP 2005535709 T 20051124 JP 2004-527970 20030808

US 2006167284 A1 20060727 US 2005-523489 20050203

PRIORITY APPLN. INFO.: US 2002-402261P P 20020809

WO 2003-US25021 W 20030808

OTHER SOURCE(S): MARPAT 140:181994

AB The present invention provides novel fluorine-containing copolymers which  
 comprise at least one fluorinated olefin, at least one polycyclic  
 ethylenically unsatd. monomer with a fused 4-membered heterocyclic ring and,  
 optionally, other components. The copolymers are useful for photoimaging  
 compns. and, in particular, photoresist compns. (pos.-working and/or neg.-  
 working) for imaging in the production of semiconductor devices. The  
 copolymers are especially useful in photoresist compns. having high UV  
 transparency (particularly at short wavelengths, e.g., 157 nm) which are  
 useful as base resins in resists and potentially in many other applications.

IT 658074-36-3P 658074-38-5P 658074-43-2P

RL: IMF (Industrial manufacture); PREP (Preparation)  
 (fluorinated monomers, fluorinated polymers having polycyclic groups  
 with fused 4-membered heterocyclic rings, useful as photoresists, and  
 processes for microlithog.)

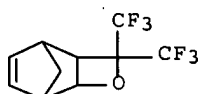
RN 658074-36-3 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4,4-bis(trifluoromethyl)-, polymer  
 with tetrafluoroethene. (9CI) (CA INDEX NAME)

CM 1

CRN 658074-29-4

CMF C10 H8 F6 O



CM 2

CRN 116-14-3

CMF C2 F4



RN 658074-38-5 ZCAPLUS

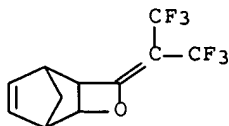
10/553600

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-, polymer with tetrafluoroethene (9CI) (CA INDEX NAME)

CM 1

CRN 658074-30-7

CMF C11 H8 F6 O



CM 2

CRN 116-14-3

CMF C2 F4



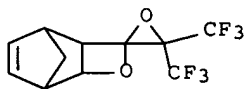
RN 658074-43-2 ZCAPLUS

CN Spiro[3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene-4,2'-oxirane], 3',3'-bis(trifluoromethyl)-, polymer with tetrafluoroethene (9CI) (CA INDEX NAME)

CM 1

CRN 658074-42-1

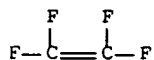
CMF C11 H8 F6 O<sub>2</sub>



CM 2

CRN 116-14-3

CMF C2 F4

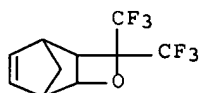


IT 658074-29-4P 658074-30-7P 658074-42-1P

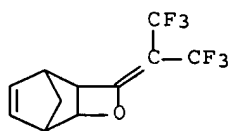
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(monomer; fluorinated monomers, fluorinated polymers having polycyclic groups with fused 4-membered heterocyclic rings, useful as photoresists, and processes for microlithog.)

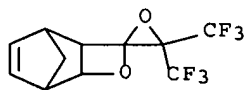
RN 658074-29-4 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4,4-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)

RN 658074-30-7 ZCAPLUS

CN 3-Oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene, 4-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]- (9CI) (CA INDEX NAME)

RN 658074-42-1 ZCAPLUS

CN Spiro[3-oxatricyclo[4.2.1.0<sup>2,5</sup>]non-7-ene-4,2'-oxirane], 3',3'-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)

L13 ANSWER 13 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:488773 ZCAPLUS Full-text

DOCUMENT NUMBER: 139:76109

TITLE: Resin compositions with good curability, optical waveguides using them, their manufacture, and their optical devices

INVENTOR(S): Watanabe, Takeo; Sato, Takashi; Ishida, Kiyotaka; Kadota, Ryuji

PATENT ASSIGNEE(S): Showa Denko K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

10/553600

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 2003177260          | A    | 20030627 | JP 2001-380165  | 20011213 |
| PRIORITY APPLN. INFO.: |      |          | JP 2001-380165  | 20011213 |

OTHER SOURCE(S): MARPAT 139:76109

AB The compns. comprise alicyclic compds. having  $\geq 1$  oxetanyl groups in a mol. The alicyclic compds. include 2-oxaspiro[3.5]nona-6-ene, 2-oxaspiro[3.5]nonane, 6,7-epoxy-2-oxaspiro[3.5]nonane, etc.

IT 550364-87-9P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(epoxy-oxetane compns. with good curability for optical waveguides)

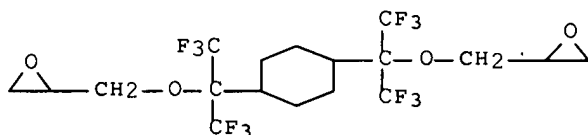
RN 550364-87-9 ZCAPLUS

CN Spiro[7-oxabicyclo[4.1.0]heptane-3,3'-oxetane], 4-methyl-, polymer with 2,2'-[1,3-cyclohexanediylbis[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]oxymethylene]]bis[oxirane], 2,2'-[1,4-cyclohexanediylbis[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]oxymethylene]]bis[oxirane] and spiro[bicyclo[2.2.1]heptane-2,3'-oxetane] (9CI) (CA INDEX NAME)

CM 1

CRN 122085-45-4

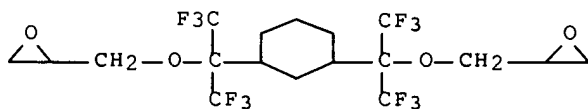
CMF C18 H20 F12 O4



CM 2

CRN 122085-44-3

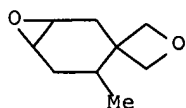
CMF C18 H20 F12 O4



CM 3

CRN 14338-17-1

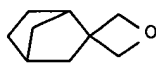
CMF C9 H14 O2



CM 4

CRN 173-23-9

CMF C9 H14 O



L13 ANSWER 14 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1993:418200 ZCAPLUS Full-text

DOCUMENT NUMBER: 119:18200

TITLE: Structures of two (1:1) adducts of  
[ $\alpha,\alpha$ -bis(3,3,3-trifluoropropynyl)]benzyl  
benzoate and furan

AUTHOR(S): Barlow, Michael G.; Beagley, Brian; Pritchard, Robin  
G.; Tajammal, Sabiha; Tipping, Anthony E.; Wright,  
Andrew P.

CORPORATE SOURCE: Inst. Sci. Technol., Univ. Manchester, Manchester, M60  
1QD, UK

SOURCE: Acta Crystallographica, Section C: Crystal Structure  
Communications (1993), C49(3), 595-8  
CODEN: ACSCEE; ISSN: 0108-2701

DOCUMENT TYPE: Journal

LANGUAGE: English

AB [(Z)-5-(Benzoyloxybenzylidene)]-1,4-bis(trifluoromethyl)-8-oxatricyclo[4.3.0.0<sup>2,9</sup>]nona-3,6-diene (4) is monoclinic, space group P2<sub>1</sub>/c, with a 9.526(2), b 20.167(2), c 11.067(2) Å, and  $\beta$  90.00(2)°; dc = 1.451(1) for Z = 4, R = 0.046, R<sub>w</sub> = 0.026 for 1246 reflections. 11,12-Benzo-10-benzoyloxy-2,8-bis(trifluoromethyl)-5-oxapentacyclo[7.3.0.0<sup>1,6</sup>.0<sup>2,4</sup>.0<sup>3,7</sup>]dodec-8-ene (5) is monoclinic, space group Cc, with a 13.138(2), b 13.897(2), c 21.912(2) Å, and  $\beta$  91.77(2)°; dc = 1.543(1) for Z = 4 (2 mols./Z), R = 0.085, R<sub>w</sub> = 0.059 for 2454 reflections. The atomic coordinates are given. The crystallog. characterization of (4) and (5) assists in establishing the mechanistic pathways of the reaction. The ring strain in isomer (4) is particularly marked at double-bonded C6 where the 3 angles sum to 344.4(7)°; in the 3-membered ring, C2-C9 [1.542(7) Å] is significantly longer than C1-C2 and C1-C9 [1.479(6) and 1.470(6) Å, resp.] and the angles C2-C1-C9, C1-C2-C9 and C1-C9-C2 [63.1(3), 58.2(3) and 58.8(3)°, resp.] are all significantly different from 60°. The strain in isomer (5), which has 2 mols. of the same chirality in the asym. unit, does not distort the 3-membered ring but gives rise to a long bond [C1-C6 = 1.59(2) and 1.62(2) Å in mols. 1 and 2, resp.], angles around C1 considerably distorted from

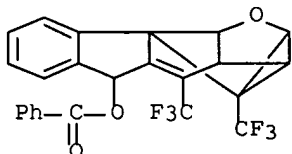
10/553600

tetrahedral, and a large angle at double-bonded C9 [C8-C9-C10 = 142(1), 138(1)°].

IT 127239-63-8  
RL: PRP (Properties)  
(crystal structure of)

RN 127239-63-8 ZCAPLUS

CN 5H-2,3,9b-Methenobenzo[5,6]pentaleno[1,2-b]furan-5-ol,  
2,3,3a,9c-tetrahydro-4,10-bis(trifluoromethyl)-, benzoate,  
(2 $\alpha$ ,3 $\alpha$ ,3a $\beta$ ,5 $\alpha$ ,9b $\alpha$ ,9c $\beta$ ,10R\*) - (9CI) (CA  
INDEX NAME)



L13 ANSWER 15 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1993:168906 ZCAPLUS Full-text

DOCUMENT NUMBER: 118:168906

TITLE: Fluorinated acetylenes. Part 10. Cycloadditions of  $\alpha,\alpha$ -bis(3,3,3-trifluoropropynyl)benzyl benzoate and 1,1-bis(3,3,3-trifluoropropynyl)ethyl ethanoate with furan and cyclopentadiene

AUTHOR(S): Barlow, Michael G.; Tajammal, Sabiha; Tipping, Anthony E.

CORPORATE SOURCE: Inst. Sci. Technol., Univ. Manchester, Manchester, M60 1QD, UK

SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1992), (19), 2485-94  
CODEN: JCPRB4; ISSN: 0300-922X

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 118:168906

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Reaction between furan and the dialkynyl ester (CF<sub>3</sub>C.tplbond.C)2CPhO2CPh in dichloromethane at 50° gave four rearranged 1:1 adducts, (benzoyloxybenzylidene)bis(trifluoromethyl)oxatricyclononadiene (Z)-I (R = Ph) (major product), benzoyloxybis(trifluoromethyl)tetrahydroepoxymethenocyclopropafluorene II, the corresponding 3H-compound III, and dibenzoylbis(trifluoromethyl)oxatetracyclononene IV (X = O, R = Ph) via the common intermediate benzoyloxyphenylbis(trifluoromethyl)oxapentacyclod ecene V (X = O, R = Ph) formed from the Diels-Alder adduct by intramol. ( $\pi 2s + \pi 2s + \pi 2s$ ) cycloaddn. The corresponding reaction with the ester (CF<sub>3</sub>C.tplbond.C)2CMeO2CMe gave analogously the diketone IV (X = O, R = Me) (major product) and a mixture of the (E)- and (Z)-I (R = Me); a 2:1 adduct,

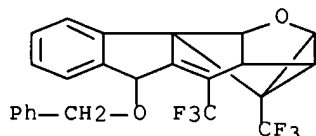
acetoxymethylbis(trifluoromethyl)dioxahexacyclopentadecadiene VI was also isolated. A mixture of cyclopentadiene and (CF<sub>3</sub>C.tplbond.C)2CPhO2CPh (2:1 molar ratio), heated at 50°, yielded mainly the bis-Diels-Alder adduct bis(3-trifluoromethylbicycloheptadienyl) benzyl benzoate VII (X = CH<sub>2</sub>, R = Ph), together with the rearranged 1:1 adduct, diketone IV (X = CH<sub>2</sub>, R = Ph). Similarly, the major product from the reaction of an excess of cyclopentadiene with (CF<sub>3</sub>C.tplbond.C)2CMeO2CMe at 50° was the bis-Diels-Alder adduct VII (X = CH<sub>2</sub>, R = Me), but a 1:1 molar ratio of reactants at 20° give the mono Diels-Alder adduct (trifluoromethylbicycloheptadienyl)(trifluoropropynyl)ethyl ethanoate VIII (X = CH<sub>2</sub>, R = Me) in high yield. The bis adduct VII (X = CH<sub>2</sub>, R = Ph) was stable at 50C, but the mono adduct VIII (X = CH<sub>2</sub>, R = Me) underwent slow intramol. ( $\pi 2s + \pi 2s + \pi 2s$ ) cycloaddn., cf., the furan reactions, and the intermediate V (X = CH<sub>2</sub>, R = Me) so formed rearranged to a mixture of IV (X = CH<sub>2</sub>, R = Me) and acetoxy[bis(trifluoromethyl)tetracyclononenyl]ethene IX. In the presence of traces of water, the ketone IV (X = CH<sub>2</sub>, R = Me) was only a minor product with the major products being the substituted ethene IX and two diastereoisomers of acetoxy[bis(trifluoromethyl)tetracyclononenyl]ethanol X.

IT 145028-38-2P 145028-39-3P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

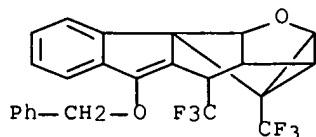
RN 145028-38-2 ZCAPLUS

CN 5H-2,3,9b-Methenobenzo[5,6]pentaleno[1,2-b]furan, 2,3,3a,9c-tetrahydro-5-(phenylmethoxy)-4,10-bis(trifluoromethyl)-, (2 $\alpha$ ,3 $\alpha$ ,3a $\beta$ ,5.alpha.,9b $\alpha$ ,9c $\beta$ ,10S\*) - (9CI) (CA INDEX NAME)



RN 145028-39-3 ZCAPLUS

CN 4H-2,3,9b-Methenobenzo[5,6]pentaleno[1,2-b]furan, 2,3,3a,9c-tetrahydro-5-(phenylmethoxy)-4,10-bis(trifluoromethyl)-, (2 $\alpha$ ,3 $\alpha$ ,3a $\beta$ ,4.alpha.,9b $\alpha$ ,9c $\beta$ ,10S\*) - (9CI) (CA INDEX NAME)



L13 ANSWER 16 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:497339 ZCAPLUS [Full-text](#)

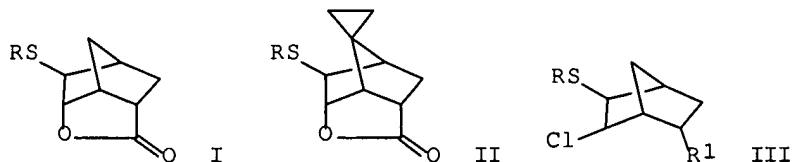
DOCUMENT NUMBER: 113:97339

TITLE: Reactions of (polyfluoroalkyl)sulfenyl chlorides with  $\gamma,\delta$ -unsaturated acids and their derivatives

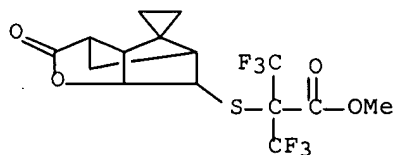


10/553600

AUTHOR(S): Sizov, A. Yu.; Linev, V. V.; Kondrashov, N. V.;  
Kolomiets, A. F.; Fokin, A. V.  
CORPORATE SOURCE: Inst. Elemento Org. Soedin. im. Nesmeyanova, Moscow,  
USSR  
SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya  
(1990), (1), 150-5  
CODEN: IASKA6; ISSN: 0002-3353  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
OTHER SOURCE(S): CASREACT 113:97339  
GI



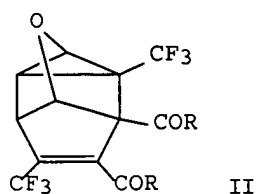
AB Treating 5-norbornene-2-carboxylic acid with  $\text{RSCl}$  [ $\text{R} = \text{ClCH}_2\text{CH}(\text{CF}_3)$ ,  $\text{ClCF}_2\text{CF}_2$ ,  $\text{FCCl}_2\text{CF}_2$ ,  $\text{ClCH}_2\text{CCl}(\text{CF}_3)$ ,  $\text{MeO}_2\text{CC}(\text{CF}_3)_2$ ] in  $\text{Et}_2\text{O}$  gave 80-93% lactones I. Analogously obtained were 87 and 76% spiro-lactones II [ $\text{R} = \text{ClCH}_2\text{CH}(\text{CF}_3)$ ,  $\text{MeO}_2\text{CC}(\text{CF}_3)_2$ ]. Treating 5-norbornene-2-carbonitrile or -2-carbonyl chloride with  $\text{RSCl}$  (same R) gave 59-85% norbornanes III ( $\text{R}_1 = \text{cyano}$ ,  $\text{COCl}$ , resp.).  
IT 128856-06-4P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
RN 128856-06-4 ZCAPLUS  
CN Propanoic acid, 3,3,3-trifluoro-2-[(hexahydro-2'-oxospiro[cyclopropane-1,4'-[3,5]methano[4H]cyclopenta[b]furan]-6'-yl]thio]-2-(trifluoromethyl)-, methyl ester, (3' $\alpha$ ,3'a $\beta$ ,5' $\alpha$ ,6' $\beta$ ,6'a $\beta$ )-(9CI)  
(CA INDEX NAME)



L13 ANSWER 17 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1990:235087 ZCAPLUS Full-text  
DOCUMENT NUMBER: 112:235087  
TITLE: Novel cycloadducts from the reactions of  
[ $\alpha,\alpha$ -bis(3,3,3-trifluoropropynyl)]benzyl  
benzoate and [1,1-bis(3,3,3-trifluoropropynyl)]ethyl  
ethanoate with furan  
AUTHOR(S): Barlow, Michael G.; Tajammal, Sabiha; Tipping, Anthony  
E.

10/553600

CORPORATE SOURCE: Inst. Sci. Technol., Univ. Manchester, Manchester, M60 1QD, UK  
 SOURCE: Journal of the Chemical Society, Chemical Communications (1989), (21), 1637-9  
 CODEN: JCCCAT; ISSN: 0022-4936  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 112:235087  
 GI



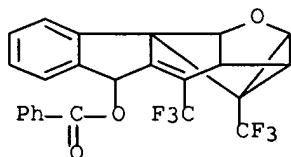
AB Reaction of furan with the dialkynyl ester (CF<sub>3</sub>C.tplbond.C)2CRO2CR(I; R = Ph) in CH<sub>2</sub>Cl<sub>2</sub> at 50° affords a mixture of four 1:1 adducts, e.g., diketone II (R = Ph), via the common intermediate 2-benzoyloxy-2-phenyl- 4,10-bis(trifluoromethyl)-7-oxapentacyclo[4.4.0.01,3.05,9.08,10]dec-3-ene, formed from the bis Diels-Alder adduct by intramol. (π2s + π2s + π2s) cycloaddn. followed by retro-cleavage of furan; the corresponding reaction with the ester I (R = Me) gives analogously diketone II (R = Me) as major product and various other products were also formed.

IT 127239-63-8P 127239-66-1P

RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

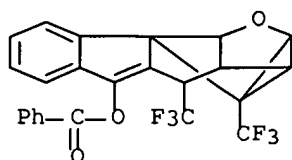
RN 127239-63-8 ZCAPLUS

CN 5H-2,3,9b-Methenobenzo[5,6]pentaleno[1,2-b]furan-5-ol,  
 2,3,3a,9c-tetrahydro-4,10-bis(trifluoromethyl)-, benzoate,  
 (2α,3α,3aβ,5α,9bα,9cβ,10R\*)- (9CI) (CA  
 INDEX NAME)

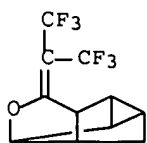


RN 127239-66-1 ZCAPLUS

CN 4H-2,3,9b-Methenobenzo[5,6]pentaleno[1,2-b]furan-5-ol,  
 2,3,3a,9c-tetrahydro-4,10-bis(trifluoromethyl)-, benzoate (9CI) (CA INDEX  
 NAME)



L13 ANSWER 18 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1970:519856 ZCAPLUS Full-text  
 DOCUMENT NUMBER: 73:119856  
 ORIGINAL REFERENCE NO.: 73:19523a,19526a  
 TITLE: Fluoroketenes. III. Reactions of  
 bis(trifluoromethyl)ketene with unsaturated compounds  
 AUTHOR(S): England, David C.; Krespan, Carl G.  
 CORPORATE SOURCE: Exptl. Sta., E. I. du Pont de Nemours and Co.,  
 Wilmington, DE, USA  
 SOURCE: Journal of Organic Chemistry (1970), 35(10), 3300-7  
 CODEN: JOCEAH; ISSN: 0022-3263  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Bis(trifluoromethyl)ketene (I) reacts with simple olefins to give  
 cyclobutanones by cycloaddn. to its C-C double bond and linear ketones by an  
 ene reaction. Dienes react at the carbonyl group of I in Diels-Alder fashion  
 to give dihydropyrans and related adducts. Implications of these findings on  
 the mechanism of cycloaddns. to ketenes are discussed.  
 IT 25636-94-6P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 25636-94-6 ZCAPLUS  
 CN 3,5,6-Metheno-2H-cyclopenta[b]furan, hexahydro-2-[2,2,2-trifluoro-1-  
 (trifluoromethyl)ethylidene]- (CA INDEX NAME)



L13 ANSWER 19 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1962:483167 ZCAPLUS Full-text  
 DOCUMENT NUMBER: 57:83167  
 ORIGINAL REFERENCE NO.: 57:16567e-i  
 TITLE: Addition products of polyfluorocyclobutanones and a  
 diene  
 INVENTOR(S): England, David C.  
 PATENT ASSIGNEE(S): E. I. du Pont de Nemours & Co.  
 SOURCE: 8 p.p.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| -----                  | ---- | -----    | -----           | -----    |
| US 3036091             |      | 19620522 | US 1958-782616  | 19581224 |
| PRIORITY APPLN. INFO.: |      |          | US              | 19581224 |

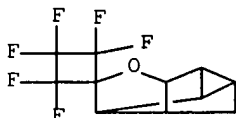
GI For diagram(s), see printed CA Issue.

AB The title compds. improve the stability of alkyd resins. A thick walled glass reactor, 24 diameters long and internal capacity 150 cc. was evacuated, cooled in a liquid N bath, and charged with a mixture of 8.5 parts perfluorocyclobutanone and 6 butadiene. The glass reactor was sealed and the reactor and its contents exposed overnight to the radiation from an 85 watt Hg vapor lamp with a glass envelope permitting transmission of no radiation of wavelength below 2800 A. The reactor was cooled, opened, and at liquid N temps. connected to a low-temperature still. There was recovered 2 of 33% butadiene, b. -5°. The remaining liquid was filtered and the filtrate purified by fractionation to give 72% 1,1,2,2,3,3-hexafluoro-5-oxaspiro[3,5]non-7-ene, liquid, b. 137°, n<sub>25D</sub> 1.370. Similarly were prepared 1,1,2,2,3,3-hexafluoro-6,9-methano-5-oxaspiro [3,5] non-7-ene, liquid, b<sub>10</sub> 51°, n<sub>25D</sub> 1.3865, 1,4,5-methenocyclopenta-[c]tetrahydrofuran-3-spiro-2',2',3',3',4',4'- hexafluorocyclobutane (I), liquid, b<sub>18</sub> 88°, n<sub>25D</sub> 1.4901, 1,1,2,2,3,3-hexafluoro-7(and 8)-methyl-5-oxaspiro[3,5]non-7-ene, liquid b.153°, 1-bromo-1,2,2,3,3-pentafluoro-7,8-dimethyl-5-oxaspiro[3,5]non-7-ene, liquid, b<sub>8</sub> 80-1°, 1,1-dichloro-2,2,3,3-tetrafluoro-7,8-dimethyl-5-oxaspiro[3,5]non-7-ene, b<sub>7</sub> 857.5° 2,2,3,3-tetrafluoro-5-oxaspiro[3,5]non-7-en-1-one, light yellow liquid, b<sub>28</sub> 67° 2,2,3,3-tetrafluoro-1,1-dihydroxy-5-oxaspiro[3,5]non-7-ene, needles, m. 74-7°.

IT 2059-37-2P, Spiro[cyclobutane-1,2'-[3,5,6]metheno[2H]cyclopenta[b]furan, 2,2,3,3,4,4-hexafluorohexahydro-  
 RL: PREP (Preparation)  
 (preparation of)

RN 2059-37-2 ZCAPLUS

CN Spiro[cyclobutane-1,2'-[3,5,6]metheno[2H]cyclopenta[b]furan],  
 2,2,3,3,4,4-hexafluorohexahydro- (7CI, 8CI) (CA INDEX NAME)



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(FILE 'HOME' ENTERED AT 11:08:13 ON 20 DEC 2007)

FILE 'REGISTRY' ENTERED AT 11:08:17 ON 20 DEC 2007

L1 9474 SEA ABB=ON PLU=ON OC4/ESS (S) C3/ESS  
 L2 962 SEA ABB=ON PLU=ON L1 (S) (>1 C5/ESS)  
 L3 689 SEA ABB=ON PLU=ON OC3/ESS (S) (2 C5/ESS)  
 L4 66 SEA ABB=ON PLU=ON L3 AND F>5

FILE 'ZCAPLUS' ENTERED AT 11:16:36 ON 20 DEC 2007

L5 11 SEA ABB=ON PLU=ON L4

FILE 'REGISTRY' ENTERED AT 11:18:09 ON 20 DEC 2007

L6 855 SEA ABB=ON PLU=ON L1 (S) (2 C5/ESS)  
 L7 10 SEA ABB=ON PLU=ON L6 AND F>5  
 L8 15 SEA ABB=ON PLU=ON L6 AND F/ELS  
     D SCA L7  
 L9 4 SEA ABB=ON PLU=ON L7 AND 4/NRRS  
     D SCA  
 L10 6 SEA ABB=ON PLU=ON L7 NOT L9

FILE 'ZCAPLUS' ENTERED AT 11:23:37 ON 20 DEC 2007

L11 5 SEA ABB=ON PLU=ON L9  
 L12 9 SEA ABB=ON PLU=ON L7  
 L13 19 SEA ABB=ON PLU=ON L5 OR L12

FILE 'REGISTRY' ENTERED AT 11:24:54 ON 20 DEC 2007

FILE 'ZCAPLUS' ENTERED AT 11:25:05 ON 20 DEC 2007

D STAT QUE L13  
 D IBIB ABS HITSTR L13 1-19

FILE HOME

FILE REGISTRY

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 19 DEC 2007 HIGHEST RN 958936-22-6  
 DICTIONARY FILE UPDATES: 19 DEC 2007 HIGHEST RN 958936-22-6

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FILE ZCAPLUS

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FILE COVERS 1907 - 20 Dec 2007 VOL 147 ISS 26  
FILE LAST UPDATED: 19 Dec 2007 (20071219/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

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## EAST Search History

| Ref # | Hits  | Search Query              | DBs  | Default Operator | Plurals | Time Stamp       |
|-------|-------|---------------------------|--|------------------|---------|------------------|
| L1    | 26613 | tricyclic                 | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2007/12/20 16:09 |
| L2    | 175   | flourinated same polymers | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2007/12/20 16:09 |
| L3    | 0     | l1 and L2                 | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2007/12/20 16:09 |
| L4    | 7150  | oxetane                   | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2007/12/20 16:09 |
| L5    | 477   | l1 and L4                 | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2007/12/20 16:10 |
| L6    | 0     | l2 and l5                 | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2007/12/20 16:10 |
| S1    | 175   | flourinated same polymers | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2007/12/20 08:54 |
| S2    | 7150  | oxetane                   | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2007/12/20 08:54 |
| S3    | 0     | S1 and S2                 | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2007/12/20 08:54 |

## EAST Search History

|    |       |           |  |    |    |                  |
|----|-------|-----------|--|----|----|------------------|
| S4 | 50183 | bicyclic  | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR | ON | 2007/12/20 16:09 |
| S5 | 2     | S4 and S1 | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR | ON | 2007/12/20 12:24 |
| S6 | 2     | "7125643" | US-PGPUB;<br>USPAT;<br>FPRS;<br>EPO; JPO;<br>DERWENT | OR | ON | 2007/12/20 12:25 |